

Amendment Under 37 C.F.R. § 1.111
USSN 09/883,131
Attorney Docket Q71763

REMARKS

In the last Office Action the drawings were objected to since one reference numeral in the drawings was not found in the specification and other reference numerals in the specification were not found in the drawings. Additionally the drawings were objected to since the subject matter of claims 16 and 19-22 was not illustrated. Proposed drawing corrections have been submitted with respect to the reference numerals for approval by the Examiner. Claims 16 and 19-22 have been canceled thereby overcoming the objection to the drawings related to these claims. Upon approval of the proposed drawing corrections the drawings will be corrected in accordance with the accepted procedures. The specification has been carefully reviewed and numerous amendments have been made in order to overcome the objections noted by the Examiner in the last Office Action.

In the last Office Action claims 37 and 38 were objected to as being in improper multiple dependent form. Claims 1-17, 19-27, 37 and 38 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1, 3, 13, 14, 15, 19-27, 29 and 37-41 were rejected under 35 U.S.C. § 102(b) as being anticipated by Thwing (USP 5,174,136). Claims 1-4, 13 and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by Borgmann et al. (USP 4,998,422). Claims 2, 4-7 and 10-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thwing (5,174,136) in view of Borgmann (4,998,422) and Thwing (6,145,356). Claims 8 and 9 were indicated as being directed to allowable subject matter.

Claims 1-36 inclusive have been canceled without prejudice in order to advance the prosecution of the present application and new claims 42-58 inclusive have been substituted therefore. Claims 37 and 38 have been amended to remove the multiple dependency. The newly

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submitted claims are believed to be in full compliance with the requirements of 35 U.S.C. § 112. Reconsideration and allowance of the application are respectfully requested in view of the following remarks.

With respect to the rejection of the claims as being anticipated by Thwing (5,174,136) it is submitted that new independent claim 42 specifically defines a padlock structure capable of being changed to provide a Type 1 padlock or a Type 2 padlock which is significantly different from the arrangement disclosed in Thwing. Claim 42 specifically calls for a cam having a first cam portion to control the balls and a cam drive portion that includes at least one drive recess defined between a space drive shoulder and free space and at least one additional drive recess. The claim also calls for the cam being operable by the barrel through an interspaced coupler that projects into the additional recess of the cam while being supported in the barrel drive recess to provide a Type 2 padlock. Finally the claims specifically calls for the cam being operable by the barrel through an interspaced coupler that projects into the free space drive recess between the spaced drive shoulders of the cam while being supported in the barrel drive recess to provide a Type 1 padlock. Such a construction is not disclosed or suggested in by Thwing in USP 5,174,136. Therefore claim 42 is clearly not anticipated by Thwing.

It is further submitted that claim 42 would not be the least bit obvious to one skilled in the art in view of the teachings of Thwing 5,174,136 taken either alone or in view of Thwing 6,145,356 and/or Borgmann et al. neither of the secondary references show the specific features as discussed above with respect to claim 42. Therefore it is submitted that new independent

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claim 42 as well as all the claims dependent therefrom are clearly allowable over the prior art applied in the last Office Action taken either alone or in combination with each other.

Independent claims 39 and 40 also specifically call for a detailed cam arrangement similar to that set forth in new claim 42. As mentioned above this type of cam arrangement is not disclosed in either of the Thwing patents or the patent to Borgmann and therefore these claims are also considered to be allowable.


In view of the foregoing amendments and arguments it is submitted that claims 37-40 and 42-58 inclusive are allowable and it is respectfully requested that these claims be allowed and the application passed to issue forthwith.

If for any reason the Examiner is unable to allow the application on the next Office Action and feels that an interview would be helpful to resolve any remaining issue, the Examiner is respectfully requested to contact the undersigned attorney for the purpose of arranging such an interview.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 11, please amend the first, second and third full paragraphs to read as follows:

--If one considers a sectional view of the shackle, as shown in Fig 18, defined by a plane which passes through the longitudinal axis of the legs of the shackle, then preferably, in relation to this view, the peripheral recess at the deepest point 11 defined by dimension 11A, and channel at the deepest point 12 defined by dimension 12A, (or flat at the deepest point ~~13~~ if the shackle is of conventional design), are substantially the same depth from the inside edge of the shackle and a lesser depth than the second locking recess at the deepest point 14 defined by dimension 14A.

In preferred embodiments, as shown in Fig 1 to 4, the padlock includes a body 15, including a casing 16 having a short recess 17 extending into the casing from a first end surface 19 to receive the short shackle leg 2 and a longer recess 18 extending into the casing from the first end surface 19 to receive the longer shackle leg 3, and a transverse recess 20 in the vicinity of the first end surface 19 commencing at a first side surface 21 of the body and intersecting the deep and short bore and in the region of the short bore having a constriction 22 of reduced cross-section so the first locking ball 23 described below, cannot pass from transverse recess 20 into the short recess 17. Preferably the axis of the ~~cross~~-transverse recess 20 orthogonally intersects the ~~axes~~ of the short and deep recesses 17 and 18 which are preferably parallel and substantially cylindrical and in practice formed by a rotating cutter tool advance from the surface and into the padlock casing.

The padlock is configured such in a locked configuration, the short leg 2 including the first locking recess 6 is within the short recess 17 and the longer leg 3 including the second locking recess 7 is within the longer recess 18 and additionally, the locking recesses 6 and 7 are aligned with the transverse recess 20. Preferably, in the locked configuration, the deepest point 14 of the second locking recess 14 is substantially co-axial with the axis of the cross-recess.--

Page 12, amend the third full paragraph to read as follows:

-- The casing is defined by a first end surface 19 referred to above, an opposed second end surface 29, a first side surface 21 referred to above, an opposed second side surface 30, a front surface ~~31~~ (not shown) and back surface 32.--

Page 14, amend the paragraph bridging pages 14 and 15 to read as follows:

-- The cam torsion spring 47, surrounding the drive portion 47~~2~~ of the cam is located axially disposed from the barrel and having a moveable end 60 held in one of the drive recesses to abut a portion of the associated drive shoulder and a fixed end 61 projecting into the offset recess to abut a portion of the offset recess wall. It is configured to bias the cam away from the unlocked configuration and towards the locked configuration. Alternatively, the end 60 comprises a spring return which extends a short distance in a direction parallel to the axis of the cam to mate in a recess commencing at the floor of a drive recess and extending towards the first end surface.--

Page 15, amend the fourth full paragraph to read as follows:

--The ~~disc-like~~ annular member 63 has two opposed substantially radially inwardly projecting wedges 65 and 66, (also called herein fingers 65 and 66 respectively), that are located

one in each drive recess 48 and 49 respectively and an outwardly projecting stop 66A that protrudes into the offset recess. The cam and stop are configured such that when the cam is in the locked configuration, as shown in Fig 13 to 16, these wedges 65 and 66 abut end portions 67 and 68 respectively of the drive shoulders 51 and 52 respectively to restrain the cam from rotating in a clockwise direction while the stop itself is restrained from rotating clockwise by the stop abutting a first wall 69 of the offset recess.--

Page 15, amend the paragraph bridging pages 15 and 16 to read as follows:

--Rotation of the barrel, as shown in Fig 9 to 12, in an anticlockwise direction from the locked configuration causes the pin extensions 57 to engage the wedges 65 and 66 to urge the stop 66A and annular member 63 to rotate in an anticlockwise direction but in so doing the wedges 65 and 66 simultaneously engage the drive shoulders end portions 67 and 68 respectively to cause the cam to rotate in an anticlockwise direction, and in practice the whole cam assembly rotates substantially simultaneously and the same amount in an anticlockwise direction until the stop 66A engages the opposite wall 70 of the offset recess; this latter configuration corresponding to the unlocked position of the cam.--

Page 16, amend the last paragraph to read as follows:

--In a padlock having a cylinder the pin sub-assembly 559 is configured such that, when the pin extensions 58 protrude towards the cam they protrude into the drive recesses 48 and 49 but they do not protrude far enough to engage in the additional recesses 73 - this configuration corresponding to a Type 1 padlock. In a Type 1 padlock, when the cam is in the unlocked position and the shackle peripheral recess is engaged with 30 the second ball the second ball

being in the second unlocking recess in the cam prevents the cam from angularly displacing but because of the free spaces between the drive pins and drive shoulders the barrel and attached drive pins can be rotated to the key withdrawal position. Preferably, the Type 1 padlock includes a compression spring 18A supported in the longer recess 18 and employed to outwardly bias the longer shackle leg. It has a free length requiring it to be compressed when the shackle is inserted in the casing.--

Page 17, amend the second paragraph to read as follows:

--By simply changing the orientation of the pin sub-assembly, the padlock can be reconfigured between a Type 1 and Type 2 padlock. ~~When the~~--

IN THE DRAWINGS:

Copies of the pages of drawings containing figures 1, 3, 4, 5, 6, 15, 18 and 20 are submitted herewith showing proposed changes in red for approval.

IN THE CLAIMS:

Claims 1-36 and 41 inclusive are canceled.

The claims are amended as follows:

--37. (Amended) A padlock, including a shackle as claimed ~~in any one of claims 19 to 28~~⁴² having a short leg with a first locking recess and a longer leg having an opposed second locking recess, said longer leg being connected by a longitudinally elongated recess or flat to a peripheral recess disposed towards the end of the longer leg,

and a casing having a short and a longer recess extending into the casing from a first end surface to accept the short and longer shackle leg respectively, a central recess extending into the

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casing from an opposed second end surface, an offset recess extending into the casing from the opposed second end surface and intersecting the central recess, the intersection defining a first and a second longitudinally elongated cusp portions, said short, longer and central recesses being intersected by a transverse recess extending into the casing from a first side of the casing,

a cylinder having a key operable barrel characterized by an undisplaced position enabling key removal,

two opposed balls supported within the transverse recess; a first ball able to protrude into the short recess and first locking recess and a second ball to protrude into the longer recess and second locking recess,

a cam to control the balls, and a coupler to facilitate operable coupling between the cam and the cylinder,

the coupler being mountable within the body to provide a Type 1 padlock characterized by an unlocked, open configuration where short leg is free of the casing, the longer leg is supported in the casing and the key is removable,

the coupler being mountable within the body to provide a Type 2 padlock characterized by an unlocked, open configuration where the short leg is free of the body, the longer leg is supported in the body casing and the key and barrel cannot be rotated to the undisplaced position to enable key removal,

wherein the cam includes a first cam portion comprising a substantially cylindrical portion defined by a peripheral, side, curved surface and having a longitudinal axis coaxial with

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the cam axis of rotation and which is parallel with and between the longitudinal axii of the short and longer recess in the casing,

the first cam portion having a removal configuration enabling the removal of the shackle, the cam in the removal configuration presenting a longitudinally elongated, side, third recess, deeper than the second recess, to the second ball to enable the second ball to be removed from all the recesses of the longer leg, wherein each finger in the removal configuration of the cam abuts an associated second drive shoulder.

and wherein the cam is rotatable in the unlocking direction to the removal configuration while the stop remains in the second operative configuration,

said removal configuration corresponding to the short leg being free of the casing.

said cam in a locking configuration presenting the curved surface to each ball to retain the balls in the locking recesses,

said cam in the unlocking configuration presenting a longitudinally elongated, side, first unlocking recess to the first ball and a longitudinally elongated, side, second unlocking recess to the second ball to enable the first ball to be removed from the first locking recess and the second ball to be partly removed from the second locking recess and be retained partly within the longitudinally elongated recess or the flat or partly within the peripheral recess.

38. (Amended) A padlock, including a shackle as claimed in ~~any one of claims 19 to 28~~42 having a short leg with a first locking recess and a longer leg having an opposed second locking recess, said longer leg being connected by a longitudinally elongated recess or flat to a peripheral recess disposed towards the end of the longer leg,

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and a casing having a short and a longer recess extending into the casing from a first end surface to accept the short and longer shackle leg respectively, a central recess extending into the casing from an opposed second end surface, an offset recess extending into the casing from the opposed second end surface and intersecting the central recess, the intersection defining a first and a second vertically longitudinally elongated cusp portion, said short, longer and central recesses being intersected by a transverse recess extending into the casing from a first side of the casing,

a cylinder having a key operable barrel characterized by an undisplaced position enabling key removal,

two opposed balls supported within the transverse recess; a first ball able to protrude into the short recess and first locking recess and a second ball to protrude into the longer recess and second locking recess

a cam to control the balls,

the angular disposition of the cam in the locking and unlocking configurations being determined by a stop comprising a disc-like member supported coaxially with and relative to the cam, and being angularly displaceable relative to the cam, and having a stop shoulder which protrudes into the offset recess, said stop having a first operative configuration where the stop shoulder abuts the wall of the offset recess adjacent the first cusp and a second operative configuration where the stop shoulder abuts the opposite wall of the offset casing adjacent second cusp,

the padlock being characterized by:

a closed, locked configuration corresponding to the stop being in the first operative configuration, the short and longer legs being supported in the casing and restrained from displacing relative to the casing, the cam being in a locking configuration and retaining the first ball partly within the first locking recess and the second ball being partly within the second locking recess,

the cam and stop member being rotateable in an unlocking direction by the cylinder to displace the padlock to an unlocked configuration, and an open, unlocked configuration corresponding to the stop being in the second operative configuration, the short leg being free of the casing, the longer leg being supported in the casing, the cam being in an unlocking configuration and retaining the second ball partly within the longitudinally elongated recess or flat or partly within the peripheral recess,

and wherein the cam includes a first cam portion comprising a substantially cylindrical portion defined by a peripheral, side, curved surface and having a longitudinal axis coaxial with the cam axis of rotation and which is parallel with and between the longitudinal axii of the short and longer recess in the casing,

wherein the first cam portion has a removal configuration enabling the removal of the shackle, the cam in the removal configuration presenting a longitudinally elongated, side, third recess, deeper than the second recess, to the second ball to enable the second ball to be removed from all the recesses of the longer leg,

the cam being rotateable in the unlocking direction to the removal configuration while the stop remains in the second operative configuration, said removal configuration corresponding to

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the short leg being free of the casing, and wherein each finger in the removal configuration of the cam abuts an associated second drive shoulder,

said cam in a locking configuration presenting the curved surface to each ball to retain the balls in the locking recesses,

said cam in the unlocking configuration presenting a longitudinally elongated, side, first unlocking recess to the first ball and a longitudinally elongated, side,

second unlocking recess to the second ball to enable the first ball to be removed from the first locking recess and the second ball to be partly removed from the second locking recess and be retained partly within the longitudinally elongated recess or the flat or partly within the peripheral recess.--

Claims 42-58 inclusive are added as new claims.

IN THE ABSTRACT OF DISCLOSURE:

The Abstract as originally filed has been deleted and substituted therefore for the proper one paragraph Abstract found on the attached unnumbered sheet.